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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------------|---------------------|------------------|
| 10/727,401 | 12/03/2003 | Yuri Alexeyevich Plotnikov | RD-28,389-8 | 7725 |

7590 06/17/2004
General Electric Company
CRD Patent Docket Rm 4A59
Bldg. K-1
P.O. Box 8
Schenectady, NY 12301

EXAMINER

TERESINSKI, JOHN

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2858

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AC

| | | | | |
|------------------------------|-----------------|--|------------------|--|
| Office Action Summary | Applicati n No. | | Applicant(s) | |
| | 10/727,401 | | PLOTNIKOV ET AL. | |
| | Examiner | | Art Unit | |
| | John Teresinski | | 2858 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on IDS filed 12/3/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 20-32 is/are rejected.
- 7) ☒ Claim(s) 15-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>12/3/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 7, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,491,409 to Flora et al..

Regarding claim 1, Flora et al. disclose an eddy current technique and device of detection of defects having a sensor array board (column 5 lines 18-22, Fig. 19), a plurality of sensors arranged on said sensor array board and operable to sense and generate output signals from the transient electromagnetic flux in a part being inspected, each of said sensors having a differential output comprising a positive and a negative output (column 5 lines 18-27), at least one drive coil disposed adjacent to said sensors and operable to transmit transient electromagnetic flux into the part being inspected (20), a first and second multiplexer/multiplexers arranged on said sensor array board and operable to switch between the positive and negative outputs of said sensors (column 5 lines 35-40, 47-50).

Regarding claims 2, 3 and 11, Flora et al. disclose a connector operable to connect the multiplexers to an external device and disposed on the sensor array board (column 5 lines 47-50).

Regarding claim 4, Flora et al. disclose the sensors forming a linear array (Fig. 19).

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Regarding claims 6 and 7, Flora et al. disclose sensors are positioned at an edge of said sensor array board, and each of said sensors has an axis of sensitivity that is oriented substantially normal to said edge (column 4 lines 60-62).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-14, 20, 21, 24, 25, 27-29 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flora et al..

Regarding claims 12-14, Flora et al. disclose a plurality of sensor array boards, a plurality of sensors arranged in a linear array, a plurality of drive coils. Flora et al. does not disclose a plurality of sensors arranged in a linear array on each of the sensor boards, or a plurality of first and second multiplexers. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a plurality of sensors arranged in a linear array on each of the sensor boards, or a plurality of first and second multiplexers since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Regarding claims 20 and 21 see claim 6 above.

Regarding claims 24 and 28, Flora et al. disclose positioning a linear array of sensors adjacent to a surface of the part (column 5 lines 28-30). Flora et al. does not disclose repeating

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sensing and generating the differential output signal using one of the sensors for at least a subset of the sensors in the linear array. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include repeating sensing and generating the differential output signal for the purpose of further analyzing a specific region where a fault may be present to provide a more accurate sensing device.

Regarding claims 25 and 29, Flora et al. disclose indexing and storing differential output signals (column 4 lines 34-40).

Regarding claims 27, 31 and 32, Flora et al. disclose on-board multiplexing (column 5 lines 47-50).

Claims 5, 8-10, 22, 23, 26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flora et al. in view of U.S. Patent No. 6,150,809 Tiernan et al..

Regarding claims 5 and 23, Flora et al. does not disclose magnetic shielding between sensors and the drive coil. Tiernan et al. disclose disclose an array of sensors for detection anomalies in conductive bodies with a drive coil and magnetic shielding between sensors and the drive coil (column 14 lines 59-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include magnetic shielding between sensors and the drive coil as taught by Tiernan et al. into Flora et al. for the purpose of increasing the sensitivity of the sensors (column 15 lines 25-30).

Regarding claims 8-10 and 22, Flora et al. does not disclose GMR sensors. Tiernan et al. disclose an array of GMR sensors for detection anomalies (column 8 lines 62-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a

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GMR sensor as taught by Tiernan et al. into Flora et al. for the purpose of scanning large areas rapidly with a high degree of spatial resolution (column 8 lines 65-68).

Regarding claims 26 and 30, Flora et al. does not disclose creating calibration curves for the sensors. Tiernan et al. disclose creating calibration curves for the sensors (column 14 lines 39-49). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include creating calibration curves for the sensors as taught by Tiernan et al. into Flora et al. for the purpose of providing a more accurate sensing device.

Allowable Subject Matter

Claims 15-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

Regarding claim 15:

The primary reason for the allowance of claim 15 is the inclusion of a mother board connected to each of the connectors. It is these features found in the claim, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claims 16-19 are allowed due to their dependency on claim 15.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

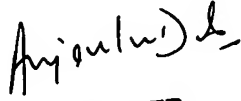
Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Teresinski whose telephone number is (571) 272-2235. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (571) 272-2233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JT
JT

June 10, 2004


**ANJAN DEB
PRIMARY EXAMINER**